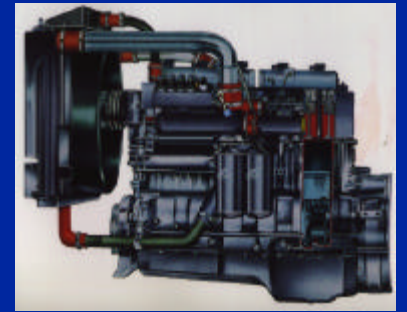




# Natural Gas Program



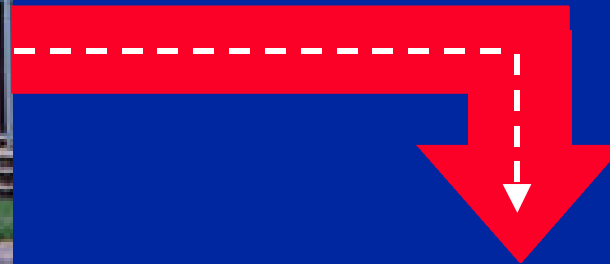
## RYDER UPDATE

Presented by: Steve Ginter

August 12, 1997



# 1900's Complete Line of Class 8





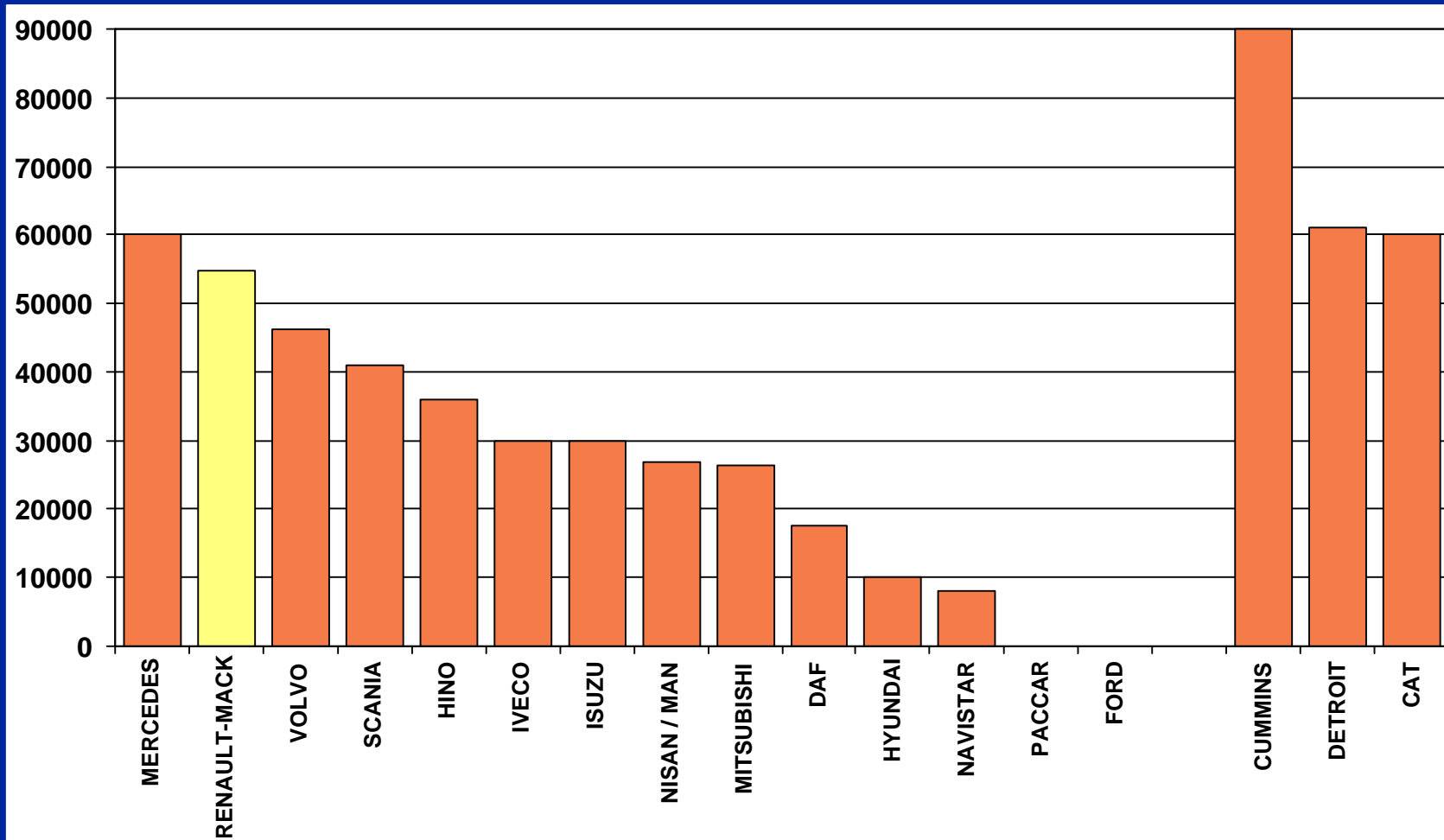
# **Mack Trucks, Inc. Chassis Manufacturer**

## **INTEGRATED VEHICLE DESIGN**

- ▼ **E7 diesel engine**
- ▼ **E7G natural gas engine - CNG or LNG**
- ▼ **Transmissions**
- ▼ **Axles and suspensions**

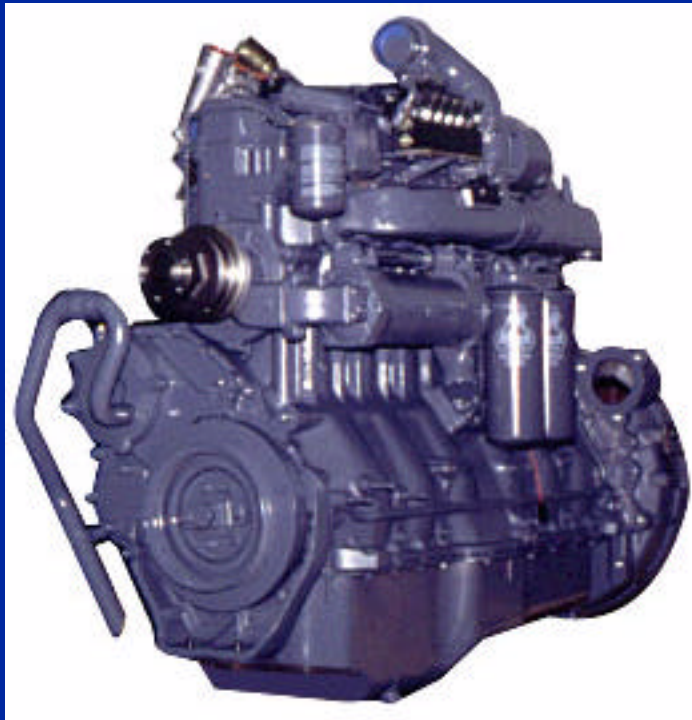


# OVERALL WORLD MARKET ENGINE CLASS 8 - 1995



Source : Renault V.I.

# NATURAL GAS SERIES



**E7G Engine**



**LE LNG**



**MR LNG**



**FUTURE MR TRACTOR**



## E7G 12L Engine



- ▼ Engine Operates on 100% Natural Gas
- ▼ Can use either CNG or LNG Fuel
- ▼ Spark Ignited & Throttled Engine Design
- ▼ Excellent Driveability
- ▼ Diesel-like Reliability & Durability
- ▼ Dynatard Engine Brake Available





## E7G 12L Engine



### ▼ Two power ratings

#### ↗ Refuse optimized

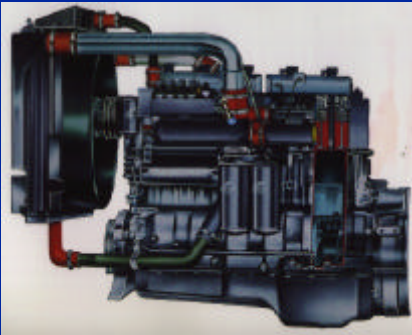
- ◆ 325 hp @ 1950 rpm; 1180 lbs. ft. P.T.

#### ↗ Highway optimized

- ◆ 350 hp @ 1800 rpm; 1260 lbs. ft. P.T.

### ▼ Good part load efficiency for refuse industry





# Benefits of Natural Gas Power

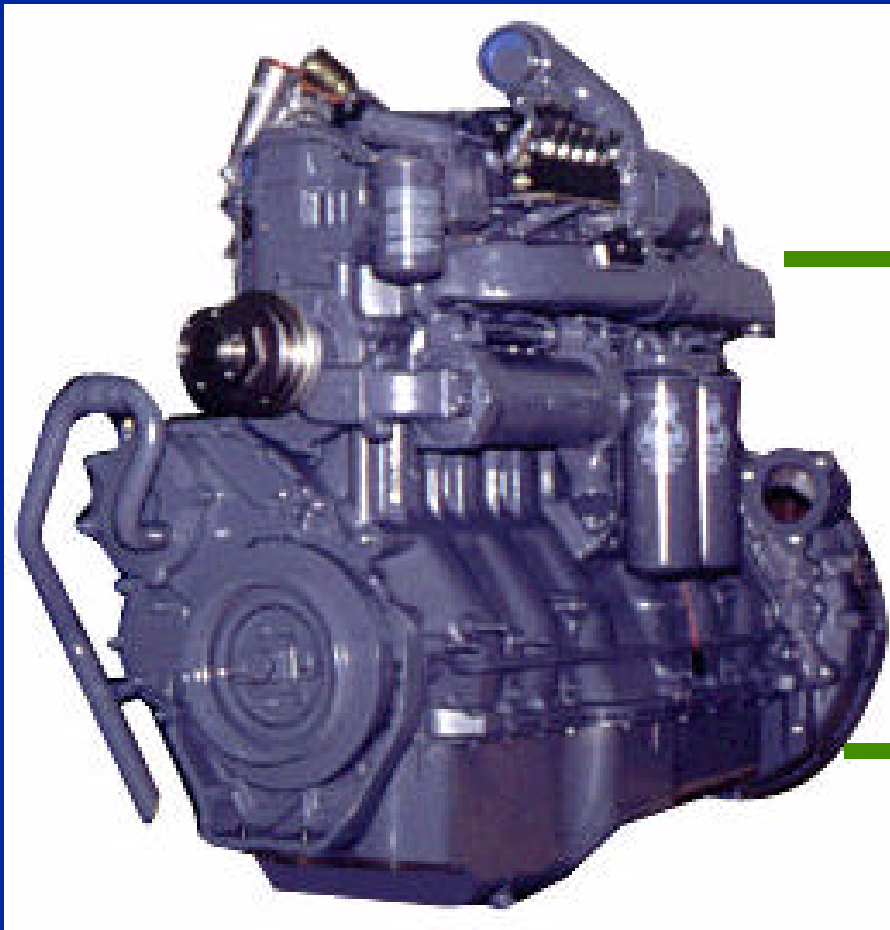
- ▼ Low Emissions
- ▼ Reduced Noise
- ▼ Driver Preferred Vehicle
- ▼ Ecological Success/Image
- ▼ Domestic Fuel



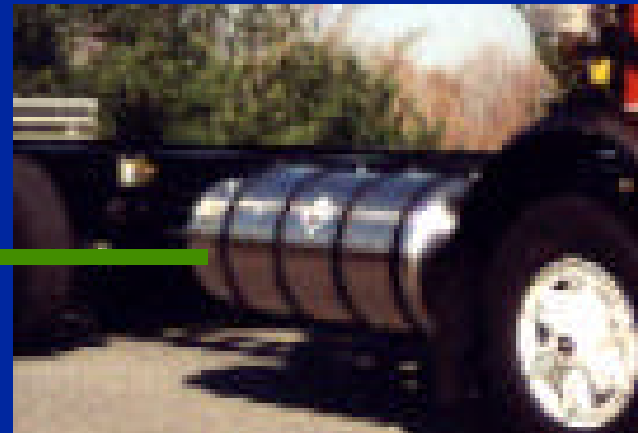


# Natural Gas Module

CNG Tanks



Engine



LNG Tanks



# Chassis Offered with Natural Gas

## ▼ LE Model “Low Entry” Cab

- ↙ Dual Steer

- ↙ Refuse Collection Truck

## ▼ MR Model “Cab Over Engine” (COE)

- ↙ Heavy Duty Truck

- ↙ Heavy Duty Tractor



# LE LNG TRUCK



# MR LNG TRUCK



# FUTURE MR LNG TRACTOR CONFIGURATION





# LE BENEFITS

## PRODUCTIVITY

- ▼ Dual operating position
- ▼ Operator is close to pick-up point
- ▼ Quick response work brake
- ▼ Low step height / reduced fatigue
- ▼ Increased number of stops per day





# LE BENEFITS

## SAFETY

- ▼ Curbside operating position
- ▼ Clearly identified instrumentation
- ▼ Critical controls provided at each operating position
- ▼ Low step - reduces fatigue
- ▼ Easy entry / exit
  - ↩ Wide doors - easy entry & exit



# MR BENEFITS



## Number One Low Cab Forward

- ▼ Excellent maneuverability
- ▼ Easy cab entry
- ▼ Rugged Mack frame
- ▼ Versatility
  - ↪ Refuse, tank, fire, concrete, dump, etc.







# LE/MR BENEFITS



- ▼ Large windshield area
- ▼ Excellent visibility
- ▼ Large door openings
- ▼ Easy entry
- ▼ Conveniently positioned controls
- ▼ Comfortable seating
- ▼ Versatile chassis for variety of body applications





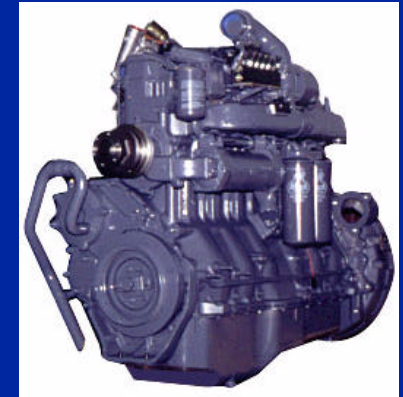
# Tanks

- ▼ Designed and tested to meet Mack vocational standards
- ▼ Stainless steel fuel system, tanks, piping, fittings
- ▼ Capacity 150 useable gallons = equivalent 70 gal. diesel
- ▼ Single point fill
- ▼ CNG service port
- ▼ Range – demonstrated full daily refuse route





# **MACK OEM Benefits**



- ▼ **Heavy Duty Engine Builder**
- ▼ **Heavy Duty Chassis Builder**
- ▼ **Extensive Vehicle Testing**
- ▼ **Vehicle Warranty**
- ▼ **National Dealer Support**



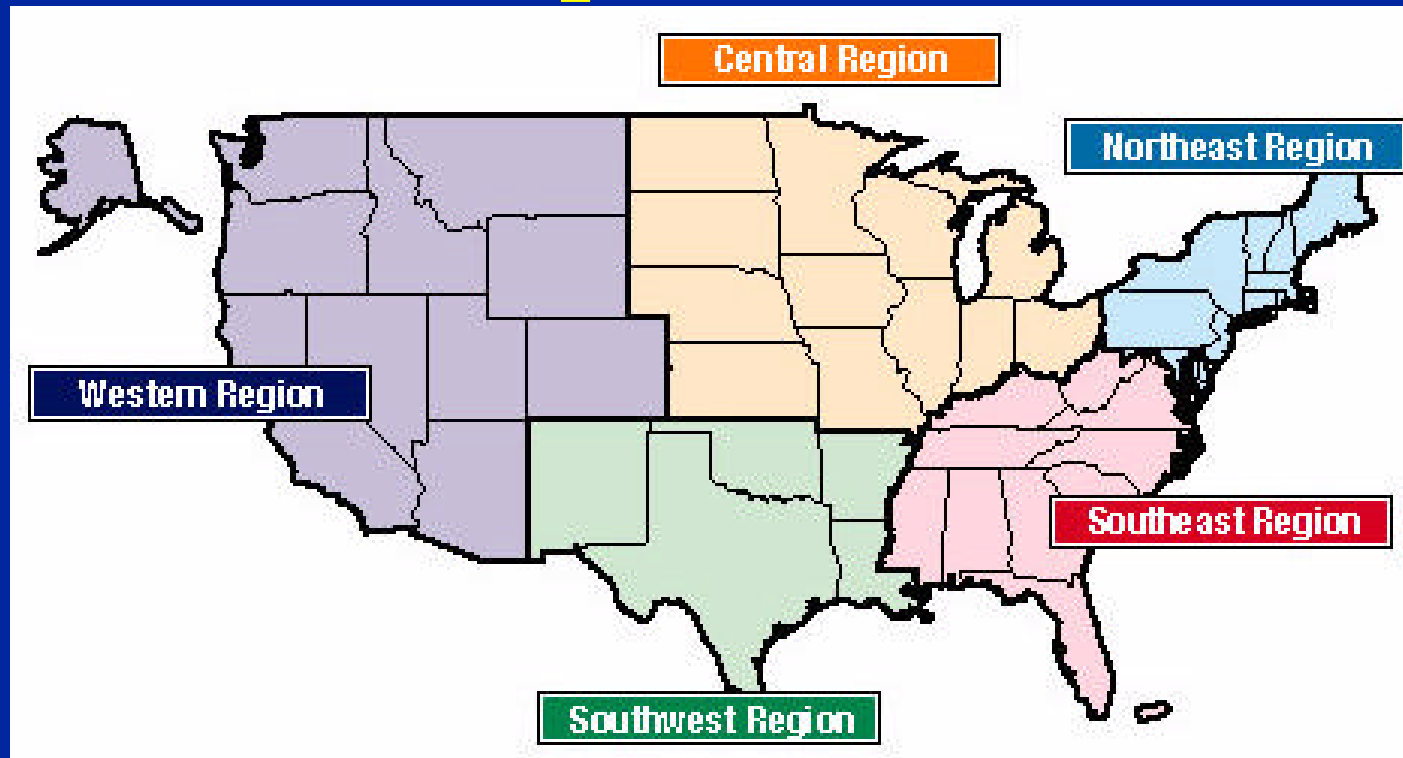


# One Warranty Provider

Truck  
Engine  
Fuel System

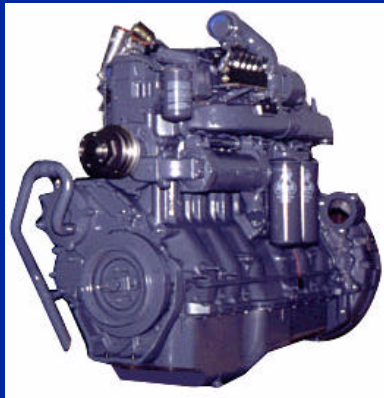


# Complete Service



- ▼ Subsidiaries - San Leandro & Anaheim
- ▼ Dealers/Service - California 24+ locations
- ▼ North America Dealers - 250 locations
- ▼ North America Service - 600 locations





# Natural Gas Series



- ▼ Available MR & LE Models
- ▼ Available E7G Engine - 325 h.p.
- ▼ Vehicle Partnership - Single Source





# Financing & Leasing Available

- ▼ ASSOCIATES COMMERCIAL CORPORATION
- ▼ Municipal – lease purchase
- ▼ Commercial – lease





# Natural Gas Development Projects

## PLANNED

- ▼ CNG Tank Option
- ▼ CH Highway Tractor
- ▼ RD Construction Truck





# Competition Clean Cities Display



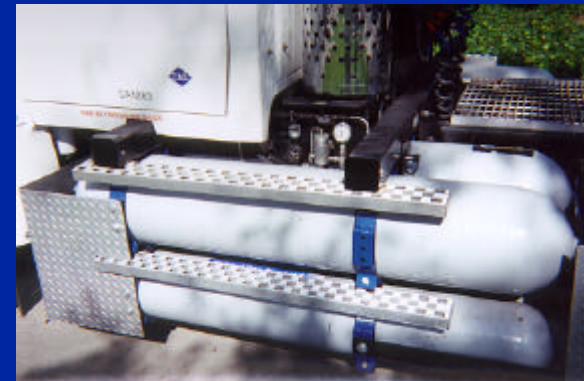
**Volvo - Rolloff Dual Fuel  
LNG & Diesel w/CAT Engine**



**Kenworth LNG Tractor**



**Crane Carrier CNG  
(City of Long Beach, CA  
3 Units)**



**Kenworth Tractor CNG Tank  
Configuration "10 Tanks"**



# MACK Clean Cities Display







**MACK TRUCKS, INC.**

**Wherever progress  
is moving ahead,  
listen for the steady  
growl of a MACK  
TRUCK.**

**THERE ARE NATIONS  
THAT DON'T LAST THIS LONG.**

